

Notice of Allowability

Application No.

10/536,561

Applicant(s)

TORO, ANTONINO

Examiner

Thomas H. Parsons

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed 10 December 2007.
2. ☒ The allowed claim(s) is/are 1-17 and 19.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

Response to Amendment

This is in response to the Amendment filed 10 December 2007.

(Previous) DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The rejection of claims 1-17 and 19 under 35 U.S.C. 103(a) as being unpatentable over Stedman (3,761,316) in view of Appleby et al. (20010033956) has been withdrawn in view of Applicant's Amendment.

REASONS FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance:

Stedman discloses a fuel cell assembly that removes heat generated in the fuel cell by a liquid coolant. However, differing from the claimed invention, the liquid coolant in Stedman is separated from and does not enter either the anode or the cathode compartment of the fuel cell. As shown in the only figure in Stedman, the fuel cell assembly comprises fuel cells 2 and 38. See Stedman, col. 2, lines 40-58; col. 2, line 67 - col. 3, line 8; and Figure. The anode compartment 50 of fuel cell 38 is defined by the end plated 46 and pins 48. *Id.* Its cathode compartment 49 is defined by plate 40 and pins 44. *Id.*

Similarly, the anode compartment 10 of fuel cell 2 is defined by plate 14 and pins 16. *Id.* Its cathode compartment 18 is defined by the end plate 24 and pins 26. *Id.* The cooling cell has a hydrophobic separator 27 interposed between plates 14 and 40. *Id.* Pins 28 and 42 in

combination of the separator 27 create cavities that the liquid coolant flows through. *Id.* Note that plates 14 and 40 are solid plates that separate the cooling cell from the adjacent anode compartment 10 and the cathode compartment 49 respectively. See Figure in Stedman. Consequently, the liquid coolant permeates from one side of separator 27 to the other side without entering either the adjacent anode compartment 10 or the cathode compartment 49. *Id.*

Therefore, Stedman does not teach a cooling cell "separated from said cathode compartment or said anode compartment of said at least one membrane fuel cell by a porous wall," nor does it teach that "liquid water passes from said at least one cooling cell to said anode or cathode compartment of said at least one membrane fuel cell across the porous wall," as recited in claim 1, as amended.

Claim 14, as amended, recited the step of "allowing said [cooling] water flow to permeate from said at least one cooling cell to said adjacent anode or cathode compartment in said at least one membrane fuel cell across said porous wall and humidifies the gaseous reactant therein."

For at least the reasons set forth above, the liquid coolant or its vapor in Stedman does not enter either the anode compartment or the cathode compartment in the adjacent fuel cell. Nor does the coolant humidify the reactant gases in these compartments.

Accordingly, the prior art references of record, alone or in combination, do not disclose a fuel cell assembly wherein the cooling water enters the anode or the cathode compartment and do not teach all elements in claims 1-17 and 19.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

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fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H. Parsons whose telephone number is (571) 272-1290. The examiner can normally be reached on M-F (7:00-3:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thomas H Parsons
Examiner
Art Unit 1795



COMMUNICATIONS SECTION
U.S. PATENT AND TRADEMARK OFFICE
